

U.S. National Stage

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 22 (Cancelled).

23. (New) A process for producing a clean liquid from an untreated or crude liquid, in particular for producing fresh water from salt water by means of an evaporation device and a condensation device connectable with the vapour outlet of the evaporation device, comprising the steps of:

filling the evaporation device and the condensation device with crude or clean liquid, respectively, when they are disconnected; and

subsequently flow connecting the evaporating device and the condensation device and exposing the crude or clean liquid in each device to a partial vacuum created by volume enlargement under hermetically sealed conditions.

24. (New) The process according to claim 23, further comprising the step of: heating the crude liquid in a heater; and separating the vapour in a separator associated with the heater.

25. (New) The process according to claim 23, further comprising the step of: cooling the condensation device during condensation.

26. (New) The process according to claim 23, further comprising the step of: injecting a vapour into the condensation device using clean liquid from the condensation device.

27. (New) The process according to claim 23, further comprising the step of: stimulating the condensation device to perform vibrating movements.

U.S. National Stage

28. (New) The process according to claim 23, further comprising the step of:
filling the evaporation device from a raw water tank located at a higher level and
refilled as and when required.

29. (New) The process according to claim 23, further comprising the step of:
filling the condensation device from a higher-level clean water tank into which the
condensed water is urged due to volume reduction.

30. (New) The process according to claim 31, wherein a pump unit is provided
having an operating chamber, the method further comprising the step of:
providing an enlargement volume of the operating chamber of the pump unit
appertaining to the vessel system on the side of the condenser larger than the capacity
of the associated condensation device, preferably more than twice as large.

31. (New) A device for producing a clean liquid from a crude liquid, in
particular for producing fresh water from salt water, comprising:

at least one evaporation device which can be supplied with crude liquid and in
which a partial vacuum can be produced;

at least one condensation device which can be supplied with vapour from said
at least one upstream evaporation device via a connecting line, wherein:

each evaporation device forms a vessel system comprising a pump unit
connected with the bottom area of said evaporation device and having an operating
chamber of variable size, which vessel system can be filled with crude liquid when said
operating chamber is reduced in size and be exposed to a partial vacuum in
hermetically closed condition by enlarging said operating chamber;

the side of said condensation device associated with the condensate forms a
vessel system comprising a pump unit connected with the bottom area of said
evaporation device and having an operating chamber of variable size, which vessel
system can be filled with clean liquid when said operating chamber of the pump of said
condensation device is reduced in size and be exposed to a partial vacuum in

U.S. National Stage

hermetically closed condition by enlarging the operating chamber of the pump of said condensation device; and

provision is made in said connecting line for a shut-off device releasing said connecting line only when the operating chambers of the pumps of said evaporating device and said condensing device are enlarged to maximum size.

32. (New) The device according to claim 31, wherein:

said evaporation device comprises at least one heater and one separator provided downstream of the heater.

33. (New) The device according to claim 31, wherein:

the vessel system comprising said evaporation device is associated with a raw water tank, arranged at a higher level, which is connected with the bottom area of the associated vessel system via a supply line, which can be shut off, which vessel system comprises a venting device that extends from the top area of the vessel system and can be shut off.

34. (New) The device according to claim 31, wherein:

the vessel system comprising the condenser side of said condensation device is associated with a clean water tank located at a higher level, which is connected via a supply line, which can be shut off, with the bottom area of the associated vessel system, and with the upper area of the associated vessel system via a discharge line provided with a check valve opening towards the clean water tank, with the vessel system comprising a venting device, which can be shut off, extending from the upper area of the vessel system.

35. (New) The device according to claim 31, wherein:

the enlargement volume of said operating chamber of the pump unit of said evaporating device appertaining to the vessel system on the side of the evaporator maximally corresponds to the capacity of said separator of said associated evaporator

U.S. National Stage

device, and is preferably smaller than that.

36. (New) The device according to claim 31, wherein:
each of said pump units comprises a sliding piston arranged in a cylinder, which sliding piston is connected with a piston of an equal-stroke drive unit, which latter piston is likewise provided in a cylinder and suppliable with a preferably hydraulic pressure medium.

37. (New) The device according to claim 32, wherein:
said heater of the evaporation device can be heated directly or indirectly.

38. (New) The device according to claim 32, wherein:
said heater is designed as a solar collector or in that said heater is associated with a solar collector.

39. (New) The device according to claim 32, wherein:
said heater is integrated in a heat exchanger, the other side of which is designed as a condensation device of another evaporation device.

40. (New) The device according to claim 39, wherein:
said heat exchanger is designed as a plate heat exchanger.

41. (New) The device according to claim 31, wherein:
said condensation device is associated with a cooling device, preferably in the form of a sprayer device, which cooling device is connected with a cooling water circuit that can be supplied with crude liquid.

42. (New) The device according to claim 31, further comprising:
an injector device associated with the vapour inlet of said condensation device, which injector device comprises a venturi tube whose inner space, which can be

U.S. National Stage

supplied with a clean liquid jet, is connected via inlets provided in the area of a constriction with an annular space which can be supplied with vapour.

43. (New) The device according to claim 31, wherein:
said condensation device is mounted in an oscillating bearing and connected with a vibration generator.

44. (New) The device according to claim 43, wherein:
said condensation device connected with an oscillation generator is on its inlet and outlet lines provided with flexible fittings.